

Inventory and Assessment of Sustainable Community Best Practice Guides for the Canadian Housing Sector

INTRODUCTION

There is growing interest among land developers, builders, municipalities and housing sector professionals for best practice advice on how to plan and develop sustainable residential developments. Although some guidelines have been published, much of the available information focuses on explaining new best practice approaches and concepts—in other words, the “what” and “why” of the approach, rather than the “how-to” of planning, design and implementation. In this context, this study developed an inventory of resources of “how-to” guidance information on achieving more sustainable residential communities and identified the gaps in the resources.

The inventory is intended to be useful to residential sector stakeholders, namely, municipalities, builders/developers and housing professionals such as planners, architects and engineers.

SCOPE

The type of “how-to” guidance of interest for this study included resources with a sufficient level of detail to outline procedural steps involved in planning, designing and/or implementing a sustainable community approach, including technical and non-technical guidance. Excluded are resources with a primary focus on standard infrastructure construction approaches. Table 1 provides the scope of resources for the inventory.

Table 1 Scope of Resources for the Inventory

	Included	Excluded
Types of Resources	Websites, reports or other downloadable electronic documents, books, textbooks, magazines, academic journals, academic papers, conference proceedings, presentations, software tools	Buyer's guides
Primary Sector of Application	Practices and technologies that apply to the <i>residential</i> sector and <i>urban transportation</i>	Practices and technologies in the <i>commercial/institutional</i> and <i>industrial</i> sectors
Sustainability Pillar	Sources that primarily address <i>environmental</i> sustainability	Sources that address only <i>economic</i> or <i>social</i> sustainability
Geographic Scope	Canadian sources or international sources that Canadian stakeholders rely on or contribute to	Other international sources
Usefulness for Implementation	Sources with sufficient detail on “ <i>how to</i> ” implement suggested practices	Sources containing information on “ <i>what</i> ” sustainable practices to implement but lacking sufficient detail on “ <i>how to</i> ” implement them
Technical Detail	Technical design and/or implementation detail that is practical and useful to describe “ <i>how to</i> ” implement an approach or practice	Very specific engineering-level technical design implementation of practices or technologies (for example, construction or engineering standards, codes and practices)
Level of Innovation	Best practices or standard practices and technologies that are not universally implemented but are a foundation for more sustainable practices	Other standard practices and technologies
Scale of Impacts	Practices and technologies that improve environmental sustainability at the <i>neighbourhood/community</i> scale or the <i>multiple-unit building</i> scale (row/town houses, low-/high-rises); individual house approaches only if they noticeably improve environmental sustainability at the community scale (for example, rainwater or greywater reuse that affects community stormwater management)	Practices and technologies that improve environmental sustainability only at the <i>single building</i> scale (for example, building envelope or HVAC system improvements on a single site)

Resources were sought in 53 topic areas, organized under 10 theme areas:

Table 2 Theme Areas and Topics Researched Within Theme Area

Theme Area	Topics Within Theme Area
1. Community/Stakeholder Engagement	<ul style="list-style-type: none"> ■ Techniques for planning and developing sustainable communities with stakeholders: workshops, charrettes, task forces, mediation ■ Use of education/outreach to gain buy-in ■ Use of monitoring and commissioning tools ■ Methods to address related issues (affordability and local reinvestment) to the extent that they impact environmental sustainability
2. Energy, at the Neighbourhood and Site Plan Scale	<ul style="list-style-type: none"> ■ Conservation, efficiency and production at the neighbourhood level ■ Alternative energy sources, production and distribution at the neighbourhood level ■ Building and road orientation ■ Percentage of building glazing
3. Municipal and Land Use Planning Tools	<ul style="list-style-type: none"> ■ Clustering (subdivision, conservation design) ■ Lot coverage, lot size, minimum yards, performance standards, and so on ■ Alternative development standards and incentives: bonusing, bylaws and guidelines, covenants and development agreements, programs, financial and other incentives (conservation trusts/easements)
4. Parks, Green Spaces, Natural Environment, Urban Agriculture, Landscaping	<ul style="list-style-type: none"> ■ Protection, restoration and conservation of environmentally sensitive areas and natural areas ■ Protection and conservation of agricultural areas ■ Open/green space dedication standards ■ Stream stewardship standards ■ Recreation, school and cultural facilities integration ■ Urban agriculture approaches ■ Tree preservation, urban forestry approaches ■ Low maintenance landscapes (for example, lawn alternatives, climate-appropriate landscaping, low maintenance lawns, woodland and wildflower/prairie gardens, streetscapes at the community scale or indigenous and drought-resistant landscaping at the community scale, such as matching plants to soil conditions, composting, irrigation, mulch, and so on) ■ Landscaping to affect microclimates ■ Sustainable landscape construction ■ Landscaping to improve water quality, reduce energy use and improve health ■ Creation of habitat for pleasure, tranquility, and so on
5. Sustainable Community Planning	<ul style="list-style-type: none"> ■ Planning toolkits/guides targeted towards entire communities ■ Sustainability plans
6. Transportation	<ul style="list-style-type: none"> ■ Transit ■ Alternative and active transportation ■ Road patterns and design ■ Right-of-way standards ■ Bikeway and pedestrian standards ■ Parking standards ■ Integrated transportation planning ■ Mobility management
7. Urban Form and Neighbourhood Design/Housing	<ul style="list-style-type: none"> ■ Residential intensification/redevelopment and neighbourhood infill ■ Brownfield/greyfield redevelopment ■ Transit-oriented development, transit-supported guidelines ■ Mixed-use development ■ Range of housing provided and impact on environmental sustainability ■ Compact, mixed-use, pedestrian-oriented subdivisions, including innovative design such as fused grid, new urbanism, green design and low impact development
8. Waste/Materials Management	<ul style="list-style-type: none"> ■ Community waste reduction/diversion programs/plans ■ Extended producer responsibility approaches ■ Closed-loop approaches that impact neighbourhood/community (such as using recycled materials in site design)
9. Water, Wastewater, Stormwater	<ul style="list-style-type: none"> ■ Water conservation and demand management ■ Rainwater harvesting, rainwater standards ■ Greywater reuse approaches ■ Water-sensitive urban design ■ Stormwater management: pavement standards, greening developments, and so on ■ Wastewater management: standard and alternative approaches and technologies, and so on
10. Cross-cutting	<ul style="list-style-type: none"> ■ Integrated watershed management (includes economic development, stakeholder engagement, urban form and neighbourhood design/housing, energy, forestry and agriculture, for example) ■ Integrated Design Process (IDP): shared use of functions and facilities; food production/distribution ■ Life-cycle approaches ■ Leadership in Energy and Environmental Design – Neighbourhood Development (LEED-ND) ■ Natural Step or One Planet Community approaches

APPROACH

The inventory:

- describes and assesses each how-to resource included in the inventory;
- can be sorted by primary topic area, while indicating the other topics covered in the guides; and
- enables multiple uses, such as reviewing only those resources of interest to certain target audiences.

Resources identified for inclusion in the inventory were based on the professional judgement of the consulting team's subject matter experts and supplemented with a targeted literature search.

The profile for each resource includes a short summary supported by a qualitative assessment based on the following attributes: comprehensiveness, complexity, effectiveness, scale, innovation and currency. Other relevant aspects are documented, including availability, cost, publisher, topic coverage, originating region, applicability to user groups and applicability to municipality sizes, locations and types. The information provided is sufficient for the key audiences to determine whether the resource has the desired information and would be worth consulting.

RESULTS

The inventory includes 81 resources across 10 theme areas, as shown in Table 3. These theme areas are further divided into topic areas.

Table 3 Coverage of Theme Areas

Theme Area	# Resources Covering Each Theme Area
Stakeholder engagement	5
Energy	5
Planning and development control tools	7
Green spaces and landscaping	10
Sustainable community planning	4
Transportation	13
Urban form, neighbourhood and planning design	9
Waste and materials management	7
Water	10
Cross-cutting	11
Total	81

All the resources included in the inventory were characterized and assessed using quantitative and qualitative attributes. The following summarizes the assessment of the resources and the assessment of the gaps in the inventory's coverage:

- **Theme and topic coverage:** With a few minor exceptions, sustainable community how-to resources that focus on environmental objectives were identified in most of the topic areas. Resources were not found for 6 out of the 53 topic areas: building/road orientation at the neighbourhood level (Energy); right-of-way standards (Transportation); greywater (Water); wastewater (Water); One Planet Community (Cross-cutting); and shared spaces (Cross-cutting).
- **Types and depth of resources:** The most common resources included in the inventory are comprehensive, detailed guidance manuals (for example, guides, manuals and handbooks), while the remainder are reports, standards, rating systems, tools and websites. These resources cover the range of information across the theme areas.
- **Originating region and language:** Gaps were identified in the resources available from Quebec (only two Quebec resources), Atlantic Canada (one resource) and the Territories (no resources). There are gaps in French language resources in this inventory; although many national resources are available in both official languages, only 25 per cent of the resources in the inventory are available in French—the national bilingual publications and the two Quebec-based publications. The gaps in French language resources are in planning and development control tools and sustainable community planning, as well as the urban form and neighbourhood design/housing, water, waste and cross-cutting topic areas.
- **Applicability to municipality populations:** Many of the resources identified are applicable to all sizes, types and locations of municipalities, especially those in the energy, green spaces and urban form/design theme areas. Most resources in the remaining theme areas are applicable to municipalities of many population sizes but are more appropriate for larger urban municipalities facing development growth pressures. Only two resources in the inventory provide specific guidance for smaller municipalities: one is on transportation and the other on stakeholder engagement.

- **Applicability to municipality locations:** Most resources present approaches that could be applicable to a municipality in any location. Five resources from British Columbia and three resources from Ontario contain very specific guidance targeting municipalities within their jurisdictions, although much of the guidance framework can be used in other jurisdictions by applying it to different regulatory environments. No other resources are limited to one region of Canada.
- **Applicability to municipality types (urban, suburban, rural, northern, remote or Aboriginal):** The majority of the identified resources in most theme areas are applicable to urban and suburban areas. Exceptions are a stakeholder engagement resource specifically targeted to rural municipalities and a transportation resource for small municipalities. For the energy and urban form/design theme areas, all the resources are applicable to all types of municipalities. No resources were found that are specifically geared towards northern or Aboriginal communities, although many resources presented generic approaches that could be applicable, albeit more difficult to implement, in these communities.
- **Applicability to user groups:** Most of the 81 resources are applicable to more than one target audience. Approximately 70 per cent of the resources in the inventory are applicable to developers and builders, 75 per cent are applicable to housing and urban design professionals and 95 per cent are applicable to municipalities. Gaps are observed in the resources for developers and builders in the following theme areas: stakeholder engagement, sustainable community planning and transportation (in these instances, less than 50 per cent of the resources are applicable to this user group). Similarly, there appear to be gaps in resources for housing sector professionals such as architects, planners and engineers in the following theme areas: sustainable community planning and waste. In these instances, less than 50 per cent of the resources are determined to be applicable to this user group.
- **Key issues discussed:** The inventory identifies resources that contain the following information:
 - *Canadian jurisdictions where the approach has been applied:* Approximately 50 per cent of the resources in the inventory contain this information, including most of the energy and urban form resources. However, the sustainable community planning and water areas largely lack this information.
 - *Canadian regulatory and approval information:* Approximately 45 per cent of the resources in the inventory contain this information, including most of the sustainable community planning resources. However, the stakeholder engagement, transportation and urban form theme areas largely lack this information.
 - *Cost or cost comparison information:* Approximately 40 per cent of the resources in the inventory contain this information. The sustainable community planning theme area primarily lacks this information, which is expected given the lack of reported cost benefits of implementing sustainable community planning. Other theme areas lacking this information are green spaces, planning and development control tools, and transportation.

CONCLUSIONS

Because an exhaustive search was not undertaken for all available how-to resources, the inventory is not a comprehensive or exhaustive database of all existing resources. Rather it is a “first pass” at identifying and documenting available resources and indicates the general quality, level of detail, and type of resources available in most theme and topic areas. Nevertheless the resources in this inventory provide useful how-to guidance on many theme and topic areas relating to residential developments in sustainable communities. Most of the resources identified are of high quality and present a useful level of detail.

For the most part, the resources in the inventory relate to incremental change. There is an absence of guidance to describe radical shifts in practice or outline how to fundamentally change community development practices. However, many of the resources provide valuable how-to guidance to stakeholders in achieving a higher level of neighbourhood and community sustainability if the guidance and approaches are applied in a more widespread manner. In particular, resources in some theme areas (namely, cross-cutting, green spaces and urban forestry, planning and development control tools, sustainable community planning, stakeholder engagement, urban form and neighbourhood design, and waste management) are more integrated with other theme areas and provide guidance on more innovative and fewer conventional sustainable community approaches.

A copy of the inventory and accompanying report is available through the Canadian Housing Information Centre.
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